

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered). Please AMEND claims 4-8, and 14-17 in accordance with the following:

1. (original) A pneumatic spring apparatus having a gas chamber filled with a gaseous substance of a predetermined pressure, comprising a regulating device provided in the gas chamber for regulating a temperature change produced according to a volume change of the gas chamber.

2. (original) The pneumatic spring apparatus of claim 1, wherein the regulating device is a solid or a liquid exhibiting a greater specific heat or heat transfer rate than the gaseous substance.

3. (original) The pneumatic spring apparatus of claim 1 or 2, wherein the regulating device is fiber-shaped steel.

4. (currently amended) The pneumatic spring apparatus of ~~any one of claims 1 to 3~~ claim 1 or 2, wherein the regulating device is adapted to make a polytropic index for a dynamic spring constant smaller than a polytropic index of the air.

5. (currently amended) The pneumatic spring apparatus of ~~any one of claims 1 to 4~~ claim 1 or 2, wherein the regulating device includes a gas formed of a mixture of saturated vapor and liquid filled in the gas chamber in a gas liquid mixed phase condition.

6. (currently amended) The pneumatic spring apparatus of ~~any one of claims 1 to 5~~ claim 1 or 2, wherein the regulating device is adapted to allow a volume of the gas chamber to be changed nearly isothermally.

7. (currently amended) The pneumatic spring apparatus of ~~any one of claims 1 to 6~~ claim 1 or 2, further comprising a stirring device for stirring the gaseous substance in the gas chamber.

8. (currently amended) An anti-vibration apparatus comprising:
a support device for supporting a target anti-vibration object with a gaseous substance of a predetermined pressure; and
a drive device for driving the target anti-vibration object,
wherein the pneumatic spring apparatus of ~~any one of claims 1 to 7~~ claim 1 or 2 is employed as the support device.

9. (original) A stage apparatus in which a movable body is moved on a surface plate, wherein the surface plate is supported by the anti-vibration apparatus of claim 8.

10. (original) An exposure apparatus for use in exposing patterns of a mask held on a mask stage onto a photosensitive substrate held on a substrate stage through a projection optical system, wherein at least one of the mask stage, the projection optical system and the substrate stage is supported by the anti-vibration apparatus of claim 8.

11. (original) An anti-vibration method comprising the steps of:
filling a gaseous substance of a predetermined pressure into a gas chamber; and
regulating a temperature change produced according to a volume change of the gas chamber.

12. (original) The anti-vibration method of claim 11, wherein a solid or a liquid exhibiting a greater specific heat or heat transfer rate than the gaseous substance is filled in the gas chamber.

13. (original) The anti-vibration method of claim 11 or 12, wherein fiber-shaped steel is filled in the gas chamber.

14. (currently amended) The anti-vibration method of ~~any one of claims 11 to 13~~ claim 11 or 12, wherein a polytropic index for a dynamic spring constant is made smaller than a polytropic index of the air.

15. (currently amended) The anti-vibration method of ~~any one of claims 11 to 14~~ claim 11 or 12, wherein a gas formed of a mixture of saturated vapor and liquid is filled in the gas chamber in a gas liquid mixed phase condition.

16. (currently amended) The anti-vibration method of ~~any one of claims 11 to 15~~ claim 11 or 12, wherein a volume of the gas chamber is changed nearly isothermally.

17. (currently amended) The anti-vibration method of ~~any one of claims 11 to 16~~ claim 11 or 12, wherein the gaseous substance in the gas chamber is stirred.